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OXC 2784
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MEMORANDUM FOR: Acting Chief, DPD

SUBJECT : Weather Support for Project QXCART

1. Paragraph 11 of this memorandum contains a recommendation requiring the approval of the Acting Chief, DPD.
 2. On December 6, 1961 weather officers representing Headquarters, DPD; [REDACTED] Headquarters, Air Weather Service and the Global Weather Central (WECEN) met with [REDACTED] of Lockheed Aircraft Corporation to discuss weather support requirements for the flight test phase of the OXCART program.
 3. During the discussion one major problem came to light. This is the problem of providing adequate data on atmospheric turbulence to the flight test director. [REDACTED] stated that the OXCART vehicle will be sensitive to turbulence and that test flights may be conducted only when turbulence is at a minimum. This applies particularly to the early months of testing, but is a factor which must be carefully considered even in the operational phase of this project.
 4. The flight test area is subject to varying degrees of turbulence much of the time. The atmospheric conditions which most often result in significant turbulence for conventional aircraft can be forecast with a reasonable degree of reliability. However, even when the necessary conditions exist, turbulence may occur in only isolated locations, or not at all. Thus, with present forecasting methods based on upper air rawinsonde data, many test flights may be postponed unnecessarily when conditions are favorable for turbulence to occur but significant turbulence is not actually present.
 5. Another factor in this problem is that the size and intensity of the atmospheric eddies which produce significant turbulence vary with the design and flight characteristics of the aircraft. The vertical velocities and eddy sizes that may affect the OXCART vehicle are not known, nor can these parameters be forecast on the basis of normal rawinsonde data.

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6. The only means of obtaining the type of data needed to evaluate the parameters which produce turbulence on the OXCART vehicle, and to develop techniques for forecasting this turbulence, is to fly over the route with a properly instrumented aircraft just prior to each test flight. The USAF Air Weather Service has RB-57 weather reconnaissance aircraft stationed at McClellan AFB, which can be made available to the project. These aircraft are already suitably instrumented except for vertical gust velocity recorders. The gust recorders are on hand at McClellan AFB and can be installed before the flight test program begins.

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7. In order to derive full benefit from the reconnaissance flights, the aircraft must be cleared to fly over [REDACTED] and a radio communication channel must be established between the RB-57 and [REDACTED]. After procedures have been established, individual reconnaissance missions can be requested as required, by the Staff Weather Officer at [REDACTED]. These requests may be relayed through WECEN to protect the identity of the requestor. The flight crews may have to be given a limited project briefing but need not be told the mission or the identity of the sponsor. All necessary internal arrangements within the Air Weather Service will be made by Lt Colonel Gaertner.

8. The possibility of using assigned aircraft, such as the F-101, for the reconnaissance flights has been considered. We believe it would be virtually impossible to properly instrument any of the assigned aircraft before the test flights begin.

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9. The best alternate solution would be to use a [REDACTED] from [REDACTED] equipped with a weather pack. However, this would require extensive modification of at least one [REDACTED]

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10. It is the firm conviction of all of the weather officers referred to in paragraph two that full use of weather reconnaissance aircraft in support of the flight test program is essential to the safety and progress of Project OXCART. The data obtained from these flights will provide a means of averting many unnecessary delays in the flight test program; it will provide a possible means of developing turbulence forecasting techniques which may be vital to the operational phase of the project; and it will be valuable for assessing the affects of other atmospheric parameters such as temperature, pressure and wind on the performance of the OXCART vehicle.

11. If the Acting Chief, DPD concurs in the Air Weather Service proposal to use the RB-57 in support of OXCART, it is recommended that he approve the actions outlined in paragraph seven.

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[REDACTED]
Chief, Weather Staff, DPD

CONCUR:

Non-Concur - conceivably such an elaborate procedure could be used for initial flight test but is much too involved for continuous operation.

SIGNED 5 JAN 1961

[REDACTED] 25X1A9a

Chief, Special Projects Branch, DPD

I concur in the Air Weather Service proposal to use RB-57 weather reconnaissance aircraft in support of Project OXCART and approve the actions which are recommended in paragraph eleven and outlined in paragraph seven.

Non-concur. No fuel info at RB-47 levels valid or in
O-bird environment.

[REDACTED] 1/ SWB

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Acting Chief, DPD-DD/P

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